

## LITHOLOGIC LOG

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## LOCATION MAP:

WELL ROAD  
 • PL-2-504 • BLM-17-493

NORTH  
 NTS

NE 1/4 NE 1/4 NW 1/4 NE 1/4 S 5 T 21S R 3E

SITE ID: NASA-WSTF LOCATION ID: PL-2-504

SITE COORDINATES (ft.):

N 227742.47 E 401193.52

GROUND ELEVATION (ft. MSL): 4508.04 (BRASS CAP)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: MUD/AIR-FOAM ROTARY

DRILLING CONTR.: LARJON

DATE STARTED: 22 SEPT. 88 DATE COMPLETED: 28 NOV. 88

FIELD REP.: P. S. EGAN

COMMENTS: 9 7/8" pilot hole reamed to 16" with mud rotary,  
0-100', 9 7/8" bit with air foam, 100'-532', Total Depth (TD) =  
532'. Bedrock not reached. Borehole drift = 29'.



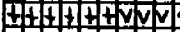







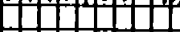

















## LOCATION DESCRIPTION:

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
5	++++VVV:::O		68	0'-532'(TD) cuttings	0'-5' <u>Surficial Caliche</u> : Grayish pink (5R 8/2) to yellowish gray (5Y 8/1). Small amount of caliche in cuttings but surface of well pad exhibits chalky dust and large clasts of caliche. Extremely long drilling time for first 5'.
10	++++VVVV:::Z		19		5'-532' <u>Gravelly Alluvium</u> (Santa Fe Group): Dusky yellowish brown (10Y 2/2) to moderate yellowish brown (10YR 5/4) when clay content is high. Cuttings range in size from less than .1 to .8 inches, are angular to subrounded and poorly sorted. Natural grains are up to .2 inches in size, are subangular to rounded and poorly-sorted. The alluvium is unconsolidated in the upper portion but consolidated to semi-consolidated in the lower portions (variations in drilling time). The lithology is an unconsolidated to consolidated, gravelly to boulder (longer drill times, bit behavior), polygenetic conglomerate. Cutting lithologies are grayish black (N2) to medium light gray (N6) micritic limestone with occasional calcite-filled fractures less than .1 to .2 inches thick, white (N9) to moderate red (5R 5/4) rhyolite which frequently exhibits oxidation rims around phenocrysts of magnetic or pyrite, dusky red (5R 3/4) to grayish olive (10Y 4/2) siltstone, moderate red (5R 4/6) granite, light gray (N7) to translucent quartz and quartzite, medium gray (N5) and grayish purple (5P 4/2) porphyritic andesite containing euhedral to subhedral phenocrysts of white plagioclase, frequently altered to moderate yellow green (5GY 7/4) epidote, and minor amounts of sandstone and caliche. Thick clay layers occur throughout the upper section of the alluvium. Caliche is present as hard pan at the surface and lesser amounts as thin lenses or coatings on clasts throughout the section.
15	=====++V:		12		
20	=====++VV:::Z		13		
25	++++VVVV:::O		24		
30	++++VVVV:::O		41		
35	++++VVVV:::Z		17		
40	++++VVVV:::Z		57		
45	=====++V		42		
50	=====++VV:		30		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description	
					10'-15'	Clay-rich interval.
50	=====+H+VW:~		30		10'-50'	Increase in average cutting size to .4 inches.
55	=====+H+VWV:~		10		40'-50'	Clay-rich zone. Clay is slowing drill rate.
60	=====+H+VWV:~		42		50'-55'	Decrease in average cutting size to .1 inches..
					55'-60'	Increase in average cutting size to .5 inches.
					60'-80'	Decrease in average cutting size to .4 inches.
65	=====+H		74		65'-100'	Clay-rich interval. Clay is slowing drill rate.
70	=====+H		9			
75	=====+H		15			
80	=====+H+V		15		80'-85'	Decrease in average cutting size to .1 inches.
85	=====+H+V		19			
90	=====+H		29			
95	=====+H		21			
100	=====+H		30		100'-292'	Drilling is rapid.
105	GGGGGGGGGGGG		3 1/2		100'-105'	Sample is 100% cement cuttings (from grouting of surface casing).
110	=====+H+VW:~		4		110'-135'	Cuttings increase in size to .3 inches average.
115	=====+H+V:~		3			

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
115	=====+V:Z		3		
120	=====+V:Z		4 1/2		120'-125' First occurrence of gray andesite in cuttings.
125	=====+V:Z		5		
130	=====+V:Z		4		
135	=====+V:Z		4		135'-140' First occurrence of purple andesite in cuttings.
140	=====+V:Z		4		135'-TD Average cutting size remains fairly consistent at .1 to .2 inches.
145	=====+V:Z		4		
150	=====+V:Z		5		150'-165' Clay-rich interval.
155	=====+V:Z		5		155'-160' Caliche, volcanics, quartzite, and siltstone present in sample but less than 10% relative to clay content.
160	=====+V:Z		4		160'-165' Quartzite and siltstone also present but less than 10%.
165	=====+V:Z		4		165'-170' Purple and gray andesite amount in volcanic fraction increasing, but rhyolite continues to predominate.
170	=====+V:Z		3 1/2		
175	=====+V:Z		3 1/2		
180	=====+V:Z		2 1/2		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
180			2 1/2		
185			3		
190			7		190'-200' Clay-rich interval.
195			5 1/2		190'-195' Quartz also present, but less than 10% relative to clay. 195'-200' Quartz, siltstone and caliche present but less than 10%.
200			4 1/2		
205			6		
210			4 1/2		
215			3 1/2		
220			3 1/2		
225			3		
230			4 1/2		
235			5		
240			9		
245			6 1/2		

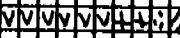












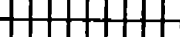





Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
245			6 1/2		245'-250' Increase in the amount of andesite in the volcanic fraction to approximately 40%.
250			4		
255			4		
260			4		
265			10		270'-275' Increase in amount of andesite in volcanic fraction to 35%.
270			6		
275			4		
280			5		
285			12		292'-532' The average drilling rate is slower than the first 292 feet. Alluvium is becoming harder.
290			4		
295			5		
300			8		
305			7		
310			8		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
310	+++++vvv//		8		
315	+++++vvv//		7		
320	+++++vvv//		8		
325	+++++vvv//		10		
330	+++++vvv//		8		
335	+++++vvv//		5		
340	+++++vvv//		7		
345	+++++vvv//		11		
350	+++++vvv//		34		
355	+++++vvv//		81		
360	+++++vvv//		14		
365	+++++vvv//		9		
370	+++++vvv//		12		
375	+++++vvv//		25		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
375	vvvvv:		25		
380	vvvvv:		9		
385	vvvvv:		19		
390	vvvvv:		15	390'-410'	Samples contain either a dark reddish brown (10R 3/4) sandstone or a highly oxidized rhyolite.
395	vvvvv:		15		
400	vvvvv:		7		
405	vvvvv:		15		
410	vvvvv:		14		
415	vvvvv:		14		
420	vvvvv:		8		
425	vvvvv:		12		
430	vvvvv:		18		
435	vvvvv     :	8	435'-532'	Volcanics have become the pre-dominant clast.	
440	vvvvv     :	4			

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
440			4		
445			4		
450			3		
455			6		
460			5		
465			9		
470			7		
475			8		
480			8		
485			18		
490			14		
495			12		
500			15		
505			10		



Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
505			10		505'-532' One sample represents this interval.
510			8		
515			12		
520			11		
525			16		
530			8		TD = 532'
535					
540					
545					
550					
555					
560					
565					
570	